RUPTURED INTRAMURAL PREGNANCY WITH LOW AND DECLINING β-HUMAN CHORIONIC GONADOTROPIN LEVELS

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SUMMARY

Objective: Intramural pregnancy is the rarest type of ectopic pregnancy and its diagnosis is usually not made until surgery. This case of intramural pregnancy had an unusual course and an ultrasound appearance not previously reported.

Case Report: A 29-year-old woman presented with vaginal bleeding. Ultrasound revealed an empty uterus and a heterogeneous mass at the fundus that displayed prominent blood flow on color Doppler and power Doppler ultrasound. Initial serum β-human chorionic gonadotropin (β-hCG) level was 441 mIU/mL and dropped to 295 mIU/mL 2 days later. The woman, however, had heavy vaginal bleeding on the following day. The mass was excised at emergency laparotomy. The pathologic report confirmed the diagnosis of intramural pregnancy.

Conclusions: Intramural pregnancy may appear as a heterogeneous mass with prominent blood flow on Doppler ultrasound. The possibility of rupture should be kept in mind even if serum β-hCG is low and keeps falling. [*Taiwanese J Obstet Gynecol* 2005;44(1):91–93]

Key Words: ectopic pregnancy, intramural pregnancy

Introduction

Intramural pregnancy is very rare, and only 26 cases have been reported up to 2001 [1]. Correct diagnosis is difficult and hysterectomy is usually required because of delayed diagnosis. We report another case of intramural pregnancy with an unusual ultrasound appearance. The gestation, despite low and falling β-human chorionic gonadotropin (hCG) levels, ruptured into the uterine cavity and caused heavy vaginal bleeding.

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Case Report

A 29-year-old woman, para 2-0-0-2, came to our hospital because of intermittent vaginal bleeding. Her last menstrual period was 78 days ago. Urinary pregnancy test was positive. Transvaginal ultrasound revealed an empty uterus and a 3.1 × 2.7 cm heterogeneous mass at the right fundus of the uterus (Figure 1). Color Doppler and power Doppler ultrasound showed prominent blood flow with a resistance index of 0.827 (Figure 2). The intramural mass with prominent blood flow suggested intramural pregnancy. The serum β-hCG level was 441 mIU/mL; follow-up serum β-hCG 2 days later was 295 mIU/mL. Because of the high impedance blood flow and declining β-hCG levels, we assumed that the gestation was resolving. After thorough discussion with the couple, they refused methotrexate injection or surgical intervention and opted for expectant management.

However, the woman came to our hospital on the following day because of heavy vaginal bleeding. Her vital signs were stable. The bleeding persisted despite

oxytocin infusion and she agreed to undergo surgery. At laparotomy, there was no internal bleeding. Bilateral adnexae were normal. The right fundus of the uterus was soft and bluish and actively hemorrhaged on cutting. Wedge resection over the mass was performed after injecting dilute vasopressin (0.2 IU/mL) into the surrounding myometrium. The mass had ruptured into the endometrium. Vaginal bleeding decreased on the following day. The postoperative course was uneventful and serum β-hCG was undetectable after 7 days. Pathology revealed chorionic villi.

Discussion

Intramural pregnancy refers to a conceptus implanting within the myometrium, without connection with the fallopian tubes and endometrial cavity [2]. Traumatic factors, such as dilatation and curettage (D&C), cesarean section, myomectomy, manual removal of the placenta, or even difficult embryo transfer, are implicated in most cases [3], followed by adenomyosis [4]. There seemed to be no risk factor in our case. The woman did not have adenomyosis and had never undergone D&C or uterine surgery. Possible etiologies include serosal implantation following external migration, and increased trophoblastic activity and defective decidualization [4].

Figure 1. Oblique view of the uterus with the probe tilted towards the right fundus, showing a mass with heterogeneous echotexture measuring 3.05 × 2.74 cm.

Figure 2. Power Doppler ultrasound of the mass showing prominent blood flow. The lowest resistance index was 0.827.

Abdominal pain and uterine bleeding in the presence of a positive pregnancy test are the hallmark presentation of ectopic pregnancy. However, early diagnosis may not be easy, and ultrasound may not always be able to localize the gestation. Sometimes, serial β-hCG assay or laparoscopy is necessary for a correct diagnosis. The typical ultrasound appearance of intramural pregnancy is a gestational sac completely surrounded by myometrium. However, correct diagnosis is not usually made until uterine rupture or surgery. Only three cases of intramural pregnancy have been correctly diagnosed preoperatively by ultrasound [1,3,4] and one by magnetic resonance imaging [5]. The ultrasound appearance can mimic degenerating fibroid, congenital uterine anomaly, or pregnancy in a sacculation or diverticulum [1]. Our case demonstrated an unusual ultrasound appearance, with a mass in the myometrium that had prominent blood flow. Although inconclusive, this is highly suggestive of intramural pregnancy in the presence of a positive pregnancy test.

Treatment of ectopic pregnancy includes surgery and medical therapy with methotrexate. Of the 26 cases of intramural pregnancy reported before 2001, 21 were managed using hysterectomy, one with methotrexate injection [5], one with potassium chloride injection [3], two with excision [6,7], and another with expectant management [1]. This high rate of hysterectomy probably reflects delayed diagnosis. Early diagnosis is therefore very important, since it makes conservative treatment possible and helps preserve fertility.

Spontaneous resolution can occur in ectopic pregnancy. Fernandez et al followed 14 patients with tubal pregnancy; spontaneous resolution occurred in nine (64%) [8]. They also found that spontaneous resolution occurred more frequently if serum β-hCG was less than 1,000 mIU/mL. Bernstein et al reported the first intramural pregnancy with spontaneous resolution [1]. Tulandi et al reported a tubal pregnancy with an initial β-hCG level of 380 mIU/mL that was managed expectantly because of falling β-hCG levels [9]. Nonetheless, the tubal gestation ruptured when β-hCG dropped to 41 mIU/mL. In our case, high impedance blood flow and declining β-hCG levels implied that the gestation was resolving. The couple opted for expectant management, but the gestation still ruptured and resulted in heavy bleeding. The

threshold β-hCG level at which intramural pregnancy is more likely to resolve is unknown. This case reminds us that low and falling β-hCG is not reassuring.

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